

SPECIFIC MEMORANDUM OF AGREEMENT
BETWEEN
THE UNITED STATES DEPARTMENT OF ENERGY
AND
POWER REACTOR AND NUCLEAR FUEL DEVELOPMENT CORPORATION OF JAPAN
FOR
A COLLABORATIVE PROGRAM OF
OPERATIONAL RELIABILITY TESTING OF OXIDE FUEL
IN EBR-II

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WHEREAS, the United States Department of Energy (DOE) and Power Reactor and Nuclear Fuel Development Corporation (PNC) of Japan, hereinafter referred to as the "Parties," have agreed to cooperate under the Agreement between the United States Department of Energy and Power Reactor and Nuclear Fuel Development Corporation of Japan in the field of Liquid Metal Cooled Fast Breeder Reactors of January 31, 1979, hereinafter referred to as the "LMFBR Agreement";

WHEREAS, the Parties recognize the merits of collaboration to avoid unnecessary duplication of effort and make best use of each country's resources to advance the development of fast reactors;

WHEREAS, the Parties wish to implement a collaboration under the LMFBR Agreement in a program entitled Operational Reliability Testing of Oxide Fuel in Experimental Breeder Reactor-II (EBR-II);

WHEREAS, in order to facilitate this Agreement, DOE agrees to make available to PNC the facilities and personnel of Argonne National Laboratory, Westinghouse Electric Corporation, Westinghouse Hanford Company, Pacific Northwest Laboratory, and Los Alamos National Laboratory, hereinafter referred to as "DOE contractors"; and

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

Article 1. Objective

The objective of this Specific Memorandum of Agreement (hereinafter referred to as the "Agreement") is for DOE, through DOE Contractors, to perform specialized EBR-II Operational Reliability Testing (ORT) in collaboration with PNC for the long life core system development and fuel reliability demonstration.

Article 2. Program

The program of collaboration under this Agreement shall cover two areas, namely, the Transient Over Power (TOP) program and the Run-Beyond-Cladding-Breach (RBCB) Program.

2.1 The TOP Program

This is a program in line with the existing joint "Fuels and Materials Development Program" where PNC and DOE are cooperating in the area of long life core systems using FFTF and JOYO. It is the principal objective to confirm the fuel pin performance, fuel pin breach threshold condition and breach characteristics of long life core materials such as advanced austenitic stainless steel and high strength ferritic alloys under reactor operational transient condition and RBCB condition during irradiation up to high burn-up of approximately 15%. See Attachment 1.

2.2 The RBCB Program

The principal objectives of the Program are to clarify the breached fuel thermal performance, delayed neutron and cover gas signal characterization and breach propagation to establish breached fuel diagnostic methods under RBCB operating conditions. See Attachment 2.

Article 3. General Provisions

Articles 11 and 14 of the LMFBF Agreement are hereby incorporated by reference.

Article 4. Finance

PNC shall make a cash contribution to DOE, in U.S. dollars, to cover the costs incurred by DOE (hereinafter called Allocable Costs) in performance of this Agreement in accordance with DOE Standard Pricing Policy for full cost recovery, except that for the purposes of this Agreement, said Pricing Policy is modified to exclude the following: Partial EBR-II occupation costs (irradiation charges), fuel burnup costs, replacement fuel costs, related facility depreciation and DOE added factor.

4.1 The total estimated cost of the work to be performed as set forth in paragraph 2.1 and 2.2 of this Agreement is Eighteen Million Three Hundred Forty-five Thousand Dollars (\$18,345,000). PNC agrees to make advance payments to DOE in accordance with the following schedule.

The first payment	Within 30 days after execution of this Agreement	\$4,364,000
The second payment	April 1, 1988	2,820,000
The third payment	April 1, 1989	2,820,000
The fourth payment	April 1, 1990	2,585,000
The fifth payment	April 1, 1991	2,775,000
The sixth payment	April 1, 1992	2,181,000
The seventh payment	To be determined by DOE/PNC	800,000

4.2 The total sum mentioned in Article 4.1 is the estimated cost of such work, therefore it is understood that Allocable Costs in excess of Twelve Million Three Hundred Sixty-Nine Thousand Dollars (\$12,369,000) for Article 2.1 work and Five Million Nine Hundred Seventy-Six Thousand Dollars (\$5,976,000) for Article 2.2 work shall not be incurred without PNC's written approval and PNC will be apprised if additional funds will be required to complete the work. DOE may discontinue the work and terminate this Agreement pursuant to Article 13 if PNC does not provide such additional funds.

4.3 PNC shall make the payments as stated in Article 4.1, provided such funding is appropriated by the Japanese Government. If such budget obligation is not obtained or is obtained at a reduced level, termination or modification in accordance with the procedures set forth in Article 13 or 14 of this Agreement shall be implemented.

4.4 All payments shall be made to the account designated by DOE within thirty (30) days after receipt of DOE written notification to PNC.

4.5 DOE shall provide to PNC semiannually appropriately detailed reports on the costs incurred by DOE for the work performed under this Agreement. Such reports shall be transmitted to PNC within two months after the end of each reporting period.

Article 5. Participation

Representatives from agencies and departments of the Governments of Japan and the United States, prime or subcontractors and licensees to DOE and PNC, reactor manufacturers and utilities of Japan and the United States may be invited to participate in discussions and meetings arranged under this Agreement. Each of the Parties shall be responsible for ensuring that the participants shall follow the laws and regulations of their respective countries and the terms and conditions of this Agreement.

Article 6. Transfer of Material

The plutonium and enriched uranium to be incorporated in EBR-II testing within the scope of the activities of Article 2 shall be provided by DOE. DOE and PNC shall consider the shipment of irradiated EBR-II fuels and materials to PNC for post-irradiation examination. If and when approvals are obtained for such transfer of materials (including either the return of all fissile material, or equivalent, to DOE at the conclusion of post-irradiation examination by PNC or other accommodation mutually agreed by the parties), DOE and PNC shall consider the costs of packaging, shipping and PIE of these materials as part of these considerations.

Article 7. Responsibility for Use of Information

7.1 The application or use of any information developed, exchanged, or transferred between DOE and PNC or DOE Contractors and PNC under this Agreement shall be the responsibility of the Party receiving it, and the transmitting Party does not warrant the suitability of such information for any particular use or application.

7.2 The transmitting Party of information developed hereunder shall not be responsible for any property damages or personal injury, whether nuclear or nonnuclear, suffered by the receiving Party, its government, its contractors and subcontractors, their employees and third parties resulting from the application or use of such information developed, exchanged or transferred between DOE and PNC or DOE Contractors and PNC under this Agreement.

Article 8. Disclosure of Information

Disclosure of information developed and included in reports under this Agreement may take the form of joint publications or individual publications; in the latter case, the publishing party shall advise the other Party of the desire to publish no less than ninety (90) days in advance of such publication and provide at the same time an advance copy of the proposed publication for editorial review. The Party receiving such notification shall review the proposed publication and advise the publishing Party of approval or disapproval within sixty (60) days of receipt of the advance copy. If the reviewing Party disapproves publication, notification to the publishing Party shall include a full explanation of the basis for disapproval. If this explanation is deemed unsatisfactory, the matter shall be promptly discussed by the DOE-PNC Joint Working Group on Fuels and Materials. The publishing party may then make any revisions to such publications as it deems appropriate.

Article. 9. Proprietary Data

No proprietary data shall be furnished, exchanged or transferred under this Agreement. "Proprietary Data" means data developed prior to or outside of this Agreement that embody trade secrets developed at private

expense, such as design procedures or techniques, chemical composition of materials, or manufacturing methods, processes, or treatments, including minor modifications thereof, provided that such data: (i) Are not generally known or available from other sources without obligations concerning their confidentiality; (ii) Have not been made available by the owner to others without obligation concerning their confidentiality; and (iii) Are not already available to the Parties without obligation concerning their confidentiality.

Article 10. Copyrighted Material

10.1 A Party may establish a claim to statutory copyright in any data it first produces in the performance of this Agreement. To the extent copyright is obtained, the other Party reserves a royalty-free, nonexclusive, irrevocable, world-wide license to publish, distribute, translate, duplicate, exhibit, prepare derivative works and perform any such copyrighted data and to permit others to do so.

10.2 The Parties agree not to include in any data delivered under this Agreement any material copyrighted by a Party and not to knowingly include any material copyrighted by others, without first granting or obtaining at no cost a license therein for the benefit of the other Party of the same scope as set forth in Article 10.1 above. If such royalty-free license is unavailable and a Party nevertheless determines that such copyrighted material must be included in data to be delivered, rather than merely incorporated therein by reference, the Party shall obtain the written authorization of the other Party to include such copyrighted material in the data prior to its delivery.

Article 11. Patents

11.1 Any invention or discovery made or conceived in the course of or under this Agreement (hereinafter referred to as "arising inventions") shall be identified and reported promptly by DOE to PNC for activities in DOE's facilities and by PNC to DOE for activities in PNC's facilities. Information regarding inventions on which patent protection is to be obtained shall

not be published or publicly disclosed by the Parties until a patent application has been filed in both countries of the Parties, provided, however, that this restriction on publication or disclosure shall not extend beyond six months from the date of reporting of the invention. It shall be the responsibility of DOE or PNC to appropriately mark reports which disclose inventions that have not been appropriately protected by the filing of a patent application.

11.2.a. Arising inventions based on the activity in DOE's facilities shall be owned by (1) PNC in Japan, subject to a royalty-free, nonexclusive, irrevocable license including the right to grant sublicenses, to DOE, its Government, and its nationals of its country designated by it, and (2) by DOE in the United States and third countries, subject to a royalty-free, nonexclusive, irrevocable license including the right to grant sublicenses, to PNC, its Government, and the nationals of its country designated by it. In the event a Party decides not to obtain all rights and interests in an arising invention in its own country or a third country, the other Party may do so, subject to a royalty-free, nonexclusive, irrevocable license to the first Party, its Government and the nationals of its country designated by it.

11.2.b. Arising inventions based on the activity in PNC's facilities shall be owned by (1) DOE in the United States, subject to a royalty-free, nonexclusive, irrevocable license including the right to grant sublicenses, to PNC, its Government, and its nationals of its country designated by it, and (2) by PNC in Japan and third countries, subject to a royalty-free, nonexclusive, irrevocable license including the right to grant sublicenses, to DOE, its Government, and the nationals of its country designated by it. In the event a Party decides not to obtain all rights and interests in an arising invention in its own country or a third country, the other Party may do so, subject to a royalty-free, nonexclusive, irrevocable license to the first Party, its Government and the nationals of its country designated by it.

11.3 This Article shall apply mutatis mutandis to the protection of utility model and of design.

11.4 Each Party shall, without prejudice to any rights of inventors or authors under its national laws, take all necessary steps to provide the cooperation from its inventors or authors required to carry out the provisions of this Article and Articles 7-10. Each Party shall assume the responsibility to pay awards and compensation required to be paid to its own nationals according to its own laws.

11.5 Either party shall report to the other, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this agreement of which either party has knowledge.

11.6 In the event of any claim or suit against either party on account of any alleged patent or copyright infringement arising out of the performance of this agreement or out of the use of any supplies furnished or work or services performed hereunder, either party shall furnish to the other upon request, all evidence and information in their possession pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the requesting party except where the party has agreed to indemnify the other.

Article 12. Observers and Assignees

Short visits by PNC personnel to DOE contractors and DOE Contractors to PNC in regard to key aspects of these tests are anticipated and are subject to DOE and PNC visit approval on a case-by-case basis. DOE and PNC may mutually determine, in the course of performance of this Agreement, that it is desirable that one or more qualified PNC engineers be assigned at a DOE contractor site on Article 2.1 work and one qualified PNC engineer be assigned at a DOE contractor site on Article 2.2 work. Such individual assignments shall be of extended duration (18 to 24 months) and shall be for the purpose of providing direct technical involvement with DOE on matters

within the scope of said Articles. To facilitate unescorted access to certain sensitive DOE sites or facilities which require special access control, PNC shall provide security assurances for the individual assignees. These security assurances shall be provided to the contracting officer 60 days prior to the anticipated assignment. Without such assurances, the assignees shall be allowed unescorted access to non-sensitive site, but escorts will be required when visiting sensitive sites, such as, Argonne National Laboratory - West. Any such assignments shall be the subject of separate written agreements pursuant to Article 11 of the LMFBR Agreement.

Article 13. Termination of Agreement

PNC may terminate this Agreement in whole or in part by giving DOE no less than one hundred eighty (180) days prior written notice. In such event, PNC shall not be liable to DOE for any costs incurred after said termination date for the work terminated; however, termination of this Agreement by PNC shall not affect PNC's obligations to reimburse DOE for Allocable Costs incurred in performing such work prior to the effective date of termination or any work authorized by PNC to be continued, or PNC's or DOE's other obligations under this Agreement. If PNC's advance payments to DOE under this Agreement exceed the allocable costs by the date of such termination, DOE shall reimburse the excess amount to PNC no later than sixty (60) days after such termination date. DOE may terminate work under this Agreement if PNC does not meet its obligations hereunder or if DOE is unable to continue performance for reasons beyond its control or if appropriated funds or requisite facilities are not available. However, such termination shall not affect PNC's obligations to reimburse DOE for Allocable Costs incurred in performing the work under this Agreement prior to the effective date of termination or any work subsequently mutually agreed to be continued by DOE and PNC or PNC's or DOE's other obligations under this Agreement.

Article 14. Modification of Agreement

PNC and DOE may mutually agree to modify or extend this Agreement, including Attachments 1 and 2 hereto, or to add and to modify future Statements of Work or amendments hereto (hereinafter called Future Attachments). Such modifications or amendments shall be made in writing and signed by the duly authorized officers or representatives of PNC and DOE.

The Parties shall jointly review Attachments 1 and 2 and any Future Attachments hereto not less than annually for work scope and/or schedule changes. Such changes shall be proposed and mutually agreed upon by Technical Correspondents who shall be designated by the Parties, for presentation to and subsequent review and approval by the DOE/PNC Joint Working Group on Fuels and Materials. Any such changes, as approved by the Joint Working Group, shall be incorporated by modification of this Agreement in accordance with this Article and shall not be implemented prior to such incorporation.

Article 15. Technical Reviews

At the discretion of and upon mutual agreement by the designated DOE and PNC Technical Correspondents for Article 2.1 work and Article 2.2 work, and upon subsequent approval by the DOE-PNC Joint Working Group on Fuels and Materials, Specialists Meetings shall be scheduled, as required, for the purpose of detailed technical review of the progress of work and discussion of plans for future work within the scope of this Agreement. Such meetings shall be conducted at agreed locations, from time to time during the course of the program.

Article 16. Term

This Agreement shall enter into force upon signature by the Parties hereto and terminate no later than December 31, 1995 unless extended by mutually written Agreement.

Done at Washington, D.C, United States of America, this

day _____ September, 1987.

U.S. DEPARTMENT OF ENERGY
CHICAGO OPERATIONS OFFICE

By: Hilary J. Rauch

Hilary J. Rauch, Manager
Title: Chicago Operations Office

Date: SEP 15 1987

POWER REACTOR AND NUCLEAR FUEL
DEVELOPMENT CORPORATION

By: Sadamu Sawan

Title: Executive Director

Date: Sept. 21, 1987

U.S. DEPARTMENT OF ENERGY
HEADQUARTERS

By: James D. Griffith

Associate Deputy Assistant Secretary
Title: Reactor Systems Development & Technology

Date: 9-21-87

Enclosures:

Attachment 1; Statement of Work: Phase-II Operational Transient Testing in
EBR-II

Attachment 2; Statement of Work: Phase-II Run-Beyond-Clad-Breach Testing in
EBR-II